BROOKHAVEN NATIONAL LABORATORY
NATIONAL SYNCHROTRON LIGHT SOURCE

MEMORANDUM

DATE: 8 May 2000

TO: Sam Krinsky, Michael Hart, Denis McWhan, Peter Paul

CC: NSLS Management Group, FEL Project Team

FROM: William S. Graves, Richard Heese, Erik D. Johnson

SUBJECT: **DUV-FEL Project Report; Period ended 5 May 2000**

Work in Progress:

Since our last report several technical problems have been addressed that have resulted in the production of photoelectron beam at an energy 185 MeV transported all the way through the machine to the Faraday cup. As mentioned in our last report, the planned work to replace the flag in the center of the achromat with a YAG screen and inspect the chamber with a bore scope was completed. Neither of these turned out to reveal be a problem for beam transport through the achromat although that finding allowed us to focus our attention elsewhere, ultimately finding a bad connection to the achromat dipole power supply programming connector. Essentially one bit of the programming word was lost, so what the computer thought were small current increments turned out to be large swings in current at the magnet, so the beam would occasionally sweep across the flag as the magnet was ramping.

We used the installation down time to run down several other items including changing some of the electrical power distribution to the linac control racks and reconfiguring the connections to the RF drive to allow independent adjustment of the klystron A phase. Extra cooling fans were also added to the RF driver racks to improve cooling. We have also met our target dates (so far) for ARR corrective actions (only three remain with due dates of 6/1/00).

Work Planned for Next Week:

The goal at this point is to establish baseline operations and conduct the fault studies required by the ARR commissioning plan. By adjusting the high power phase shifters we should be able to achieve full beam energy early in the week. Fault studies are tentatively scheduled to start Wednesday afternoon. Equipment repairs will be performed as required to support running of the linac, but otherwise technical support will work off of the 'punch-list' as time permits.

Management:

We will give highest priority to running to conduct fault studies. We will also continue to address the ARR findings and follow-ups to prepare for the ARR for 'full operations'.